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ABSTRACT

This study provides interaction analyses collected by 16 interns, who in groups of four, team-planned and individually taught four public school classes. Together with interaction analyses of a study from the previous semester involving similar micro-unit instruction at the campus laboratory school, these data provide interesting comparisons. Regardless of grade, age, and ability levels, students in both groups achieved levels of involvement and thinking higher than those cited in previous research with experienced teachers. The author concludes that this program of integrating theory and practice has had positive effects on the students, interns, cooperating teachers who have an in-service program in current methods and materials of teaching, and the subsequent student teaching experience. A 9-item bibliography is included. (Author/PD)

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Interaction Analysis and Increased Student Involvement

Introduction

Can student involvement be increased when interns' preparation includes the use of instruments recording classroom interaction?[1] This study provides data gathered in two semesters by this writer who taught two groups of interns the methods course prior to student teaching. The first group taught a micro-unit to campus laboratory school junior high students,* while the second taught a public secondary group of juniors and seniors the following semester. The micro-unit integrates theory and practice in a program[2] whose goals are to prepare interns to (1) relate classroom interaction to laws of learning; (2)accurately identify and record classroom interaction; and (3) structure lessons (focusing on inquiry techniques) to achieve levels of student involvement and thinking higher than that previously reported in research with experienced teachers. The data show that regardless of age-, grade-, and ability-levels, students in both studies achieved mean percentages of student involvement and thinking higher than that revealed in prior research. (See Table 1)

The Study

Flanders' research states, that, on an average, teachers talk more than 70 percent of the time.[3] According to Hudgins and Ahlbrand, 80 percent of student talk was limited to fact-stating.[4] Moreover, three studies[5] state that, on the average, 55 percent of the teacher's talk dealt with recall of facts, the lowest level of thinking. Flanders further states that student achievement is more likely to occur when student involvement increases.[6]

*Barbara Olmo," Interaction Analysis for Teacher Preparation," Submitted for publication, fall, 1973.

Table 1

Percentages of Classroom Interaction and Levels of Thinking*

	Campus Laboratory School Grades 7 & 8 spring semester Interns =20 Classes = 4						Public School Grades 11& 12 fall semester Interns =16 Classes = 4				
	Day 1	2	3	4	5	Mean %	1	2	3	4	Mean %
Categories* % Teacher Talk	42.50	47.50	33.75	40.00	40.00	*41	37.5	33.75	32.50	42.5	*36.5
Direct	20.00	25.00	20.00	22.50	21.25	22	17.5	16.25	10.00	15.0	14.7
Indirect	22.50	22.50	13.75	17.50	18.75	19	20.0	17.50	22.50	27.5	21.8
% Student Talk	41.25	33.75	50.00	33.75	45.00	*41	55.0	62.50	55.00	50.0	*55.6
Response	16.25	16.25	17.50	22.50	23.75	19	22.5	26.25	20.00	27.5	24.1
Initiated	25.00	17.50	32.50	11.25	21.25	22	32.5	36.25	35.00	22.5	31.5
% Reading or study	7.50	10.00	8.75	18.75	7.50	*10	5.0	1.25	11.25	5.0	* 5.7
% Silence or confusion	8.75	8.75	7.50	7.50	7.50	* 8	2.5	2.50	1.25	2.5	* 2.2
					Total	100				Total	100.0
Levels of Thinking**											
Recall, interpretation & application	32.50	35.00	17.50	37.50	17.50	**28	23.75	23.75	10.00	17.5	**18.75
Analysis, synthesis, problem solving	65.00	58.75	55.00	45.00	36.25	**52	23.75	15.00	53.75	32.5	**31.25
Affective (attitudes, values, beliefs)	2.50	6.25	27.50	17.50	46.25	**20	52.50	61.25	36.25	50.0	**50.00
					Total	100				Total	100.00

*Perkins' scales, combined.
**Bloom's levels.

*See Appendix, page 8. Every three seconds, observers note the nature of classroom interaction. These notations are translated into percentages of class time for teacher talk, for example. In the Table on page 2, the mean percentages are listed by categories. For levels of thinking, the interns recorded each question, determined the level according to Bloom's Taxonomy and tallied the frequencies. For example, the mean percentage was 65 of analysis, synthesis, or problem solving for four interns on their first day of teaching. The co-operating teacher verified the interaction analyses by the interns in a feedback conference immediately after the intern's teaching. In the campus laboratory school study the spring semester before, the writer tabulated interaction analyses.

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The interns were first taught inquiry techniques which emphasize decision-making, the generation of students' information, and small group discussion, all of which tend to increase student involvement. In particular, the following were demonstrated by the methods instructor: (1) case study, (2) role play/simulation, (3) laboratory lessons (behavioral science-type), and (4) values analysis or clarification. The interns then incorporated these techniques in micro-units of varied topics. In groups of four, the interns observed, team-planned, then individually taught their students. Interns used three instruments to record classroom interaction.[7]

Results

The mean percentage of teacher talk was 41 for campus laboratory interns and 36.5 for public secondary interns. Previous research states that, on the average, teachers talk more than 70 percent.[8] The mean percentage of lower cognitive levels (recall, interpretation, and application), was 28 for campus school students and 18.7 for public secondary students. Research states that 55 percent of the teacher's talk dealt with recall of facts and that 80 percent of student talk was fact-stating.[9]

Student Reaction

Daily reaction sheets were supplied the students whose comments emphasized the manner in which the interns presented the topics. Far less attention was given to the substance of the topics (except to say "they were interesting.") The comment students made most frequently (regardless of age-, grade-, or ability-levels) was their preference for discussions. While they enjoyed hearing their peers' ideas in small groups, most students benefitted from a return to a full-class

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forum and summary at the conclusion of the class period. The students stressed their interest in hearing classmates' viewpoints; one boy wrote, "Was I surprised!" The second most popular opinion was the efficacy of debating alternatives in a "pressured" decision-making context. Several lessons consisted of providing at least three or four alternative positions to defend. The third comment expressed most often revealed the students' appreciation, and sometimes awe, for topics about which they had heard little, if any information. Specific examples include the absence of prejudice in a New Guinea society and the controversial subject, euthanasia. Because these ideas opened up new territory for the students, most of them were fascinated and asked for more examples.

Suggestions or advice given to the interns by students were preceptive, sometimes amusing, and very similar to those made by students in Iowa and Hawaii where previous studies have been done by the author. After the third day of an all-male micro-unit, one boy wrote, "Bring on the girls!" More "professional advice" included:

1. Discuss the questions thoroughly and don't skip around.
2. Create more interest.
3. Smile more.
4. "Force" people to answer.
5. Please talk louder.
6. Do experiments to let us find things out for ourselves.
7. Give clearer directions.

An amusing but very familiar plea was (after three days), "Change the topic! We've been discussing it too long!" To further illustrate our adolescents' appetite for variety, this comment emphasizes their demands (after the second day of a role play technique), "It was the same old thing!" One sophisticated, and not very supportive senior said, "I feel the potency of this lesson involves many aspects which could be more significantly illustrated." The interns could not decide whether this comment was meant to change the members of a certain group: "Eliminate

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my peers!" The candor of the comments is illustrated in this pointed observation by a junior, "I think you're a nice teacher, but I'd fall asleep in your class. Be more expressive and don't be so vague." Speaking of another intern, a senior said, "I liked the atmosphere you created."

Generally, students reacted to each intern as an individual, not as a member of a team. Unfortunately, some interns were compared on the bases of different personalities and teaching styles. While three students objected to the discussion of euthanasia because it was too "heavy" and depressing a topic, twenty-three stated great interest in follow-up study. Several students inquired further about topics introduced, specifically false advertising, how television affects the public, the idea of prejudice, and euthanasia. A few students in each class asked that they decide who should be in each group. The interns experimented by putting specific students together for particular reasons. In one simulation, five class leaders (who usually dominated discussions) were put in one group which had the most challenging role. The intern hypothesized that the other groups might become more verbal and participation would be more even throughout the class. Furthermore, interns were alerted that assigning specific students to groups is one of the major reasons for doing small group work. Cliques and narrow-mindedness among some adolescents can be partially handled by perceptive grouping. One final and somewhat illuminating observation of student daily reaction sheets: the most verbal "high ability" class and the "low ability" class (both juniors) wrote the least comments. The same amount of time was provided each day for this opportunity, so the contrast with the other classes is interesting. The cooperating teacher commented that this was typical of their usual performance. The "high ability" class would rather talk than write.

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Summary and Conclusions

Data were collected by two groups of interns using classroom interaction instruments, one with the campus school and the other with a public secondary school. Regardless of levels (age-, ability-, or grade-level), the mean percentages of the levels of student involvement and thinking were higher than those previously reported in research with experienced teachers. Only one class of "low ability" juniors had been less familiar with small group techniques. The other seven classes had used small groups, on the average, two days out of five. While cooperating teachers noted increased student participation during the interns' teaching, further studies with classes less familiar with inquiry or grouping would be desirable. The "low ability" class was analyzed separately. The mean percentage of student involvement was 42.5 compared with the overall mean of 55.6 among high school students. Teacher talk was recorded at a mean percentage of 46.25 for the "low ability" class compared with 36.5, the overall high school mean percentage. Teachers usually suppose that the slower the student, the greater their need to talk. Yet, when inquiry techniques within the reading level of the students are done, sometimes suprisingly high levels of student participation occur. Recently one teacher (who had taken a course for teaching low achievers from this author) said she tried a simulation demonstrated in the course. "I didn't think it would work, really. But I tried it the second day of school and the kids really surprised me with their reaction!" Further studies are necessary with low achievers to verify the hypothesis that increased involvement and levels of thinking can be improved through inquiry techniques and the use of classroom interaction instruments.

In evaluating their experience, students were unanimous in their praise of inquiry techniques, particularly small group "debates" (in the simulations), case studies (where "pressure decision making" was emphasized), and investigation of peer

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opinions. If interns can achieve levels of thinking and participation through inquiry techniques and interaction analyses, the implications are interesting for experienced, as well as prospective teachers. In-service programs could be another basis for study to measure results with veteran teachers. Follow-up studies of the interns in their student teaching will be the next phase. Ideally, long range studies of interns who have been prepared to teach in similar programs would provide valuable data.

At least, for now, this program of integrating theory and practice has had positive effects on the students, interns, cooperating teachers (who have an in-service program in current methods and materials of teaching), and the subsequent student teaching experience.

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APPENDIX

Hugh V. Perkins' instruments used in "A Procedure for Assessing the Classroom Behavior of Students and Teachers," American Educational Research Journal I, No. 4 (November 1964), pp. 249-60.

Student Categories		*Teacher Categories*	
LISWAT	Interested in ongoing work: listening and watching—passive.	1.	Does not accept student's idea, corrects it: rejection or correction of student's response.
REWR	Reading or Writing: working in assigned area—active.	2.	Praises or encourages student or behavior: enthusiastic acceptance of student's response.
HIAC	High activity or involvement: reciting or using large muscles—positive feeling.	2A.	Listens to, helps, supports, nurtures student: accepting, helping response; also listening to recitation.
WOA	Intent on work in another curricular area: school activity not assigned to be done right then.	3.	Accepts or uses student's answer or idea.
WNA	Intent on work of nonacademic type: preparing for work assignment, cleaning out desk, etc.	4.	Asks questions about content (what? where? when?): wants to find out whether student knows and understands material.
SWP	Social, work-oriented—PEER: discussing some aspect of schoolwork with classmate.	4A.	Asks questions that stimulate thinking (why? how?): encourages student to seek explanations, to reason, to solve problems.
SWT	Social, work-oriented—TEACHER: discussing some phase of work with teacher.	5.	Lectures, gives facts or opinions about content: gives information in discussion, recitation, or committee meeting.
SF	Social, friendly: talking to peer on subject unrelated to schoolwork.	6.	Gives directions, commands, or orders with which student is expected to comply.
WDL	Withdrawal: detached, out of contact with people, ideas, classroom situation; daydreaming.	7.	Criticizes or justifies authority: disapproves of conduct or work of student or group of students.
		10.	Is not participating in class activities: is giving test or is out of room—class silent or in confusion.

DISC	Large-group discussion: entire class discusses an issue or evaluates an oral report.	LDR	Leader-director—teacher initiative—active: conducts recitation or discussion, lectures, works with small groups.
REC	Class recitation: teacher questions, student answers—entire class or portion of it participating.	RES	Resource person—student-centered, lesser role than leader: helps group or committee, brings material, suggests.
IND	Individual work or project: student is working alone on task that is not a common assignment.	SUPV	Supervisor—teacher initiative, passive, role during seatwork: circulates to observe and help.
SEAT	Seatwork, reading or writing, common assignment.	SOC	Socialization agent: points to and reinforces social expectancies and rules; criticizes behavior.
GRP	Small-group or committee work: student is part of group or committee working on assignment.	EVL	Evaluator: listens and gives mark for oral report, individual or group; asks, "How many did you get right?"
REP	Oral reports—individual or group: student is orally reporting on book, current events, or research.		

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Footnotes

[1]Ned A. Flanders, "Integrating Theory and Practice in Teacher Education," Theoretical Bases for Professional Laboratory Experiences in Teacher Education, 44th Yearbook of the Association for Student Teaching, 1965, p. 64. For information on the use of interaction analyses and other research models, see Edmund J. Amidon and John B. Hough, Interaction Analysis: Theory, Research and Application. Reading, Massachusetts: Addison-Wesley Publishing Company, 1967; Edmund Amidon, "Interaction Analysis and Its Application to Student Teaching," Theoretical Bases for Professional Laboratory Experiences in Teacher Education, 44th Yearbook of the Association for Student Teaching, 1965, pp. 71-92.

[2]For further details, see Barbara Olmo, "Teaching Micro-Units in Social Studies," Improving College and University Teaching (summer, 1972), pp. 108-111. Action research involving an entire professional semester at the University of Iowa is described by the author in "A Cooperative Student Teaching Program: Pilot Study," Journal of Experimental Education (summer, 1973).

[3]Ned A. Flanders, Teacher Influence, Pupil Attitudes, and Achievement. Cooperative Research Monograph No. 12, Office of Education, U. S. Department of Health, Education and Welfare. Washington, D. C.: Government Printing Office, 1965, pp. 1-23; 111-121.

[4]B. B. Hudgins and W. P. Ahlbrand, Jr. A Study of Classroom Interaction and Thinking. St. Louis: Central Mid Western Regional Educational Laboratory, 1967.

[5]Ibid.; A. A. Bellack, H. M. Kliebard, R. T. Hyman, and F. L. Smith, Jr. The Language of the Classroom. New York: Teachers College Press, 1966; and B. O. Smith and M. Meux. A Study of the Logic of Teaching. Urbana: Bureau of Educational Research, University of Illinois, 1962.

[6]Ned A. Flanders. Analyzing Teaching Behavior. Reading, Massachusetts; Addison-Wesley Publishing Company, 1970, pp. 13-14.

[7]Hugh V. Perkins, "A Procedure for Assessing the Classroom Behavior of Students and Teachers," American Educational Research Journal, I. No. 4 (November, 1964), pp. 249-260; Benjamin S. Bloom, ed. Taxonomy of Educational Objectives. New York: Longmans, Green and Co., 1956.

[8]Flanders, op. cit., Teacher Influence, Pupil Attitudes, and Achievement.

[9]Hudgins and Ahlbrand, op. cit.; Bellack, et al, op. cit.